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PLEURO-PNEUMONIA.

Even the strongest believers in compulsory slaughter for stamping out pleuro-pneumonia must be a little disappointed at the results so far obtained. We say this with no doubt as to the ultimate triumph of the measure but from fuller knowledge of the difficulties to be overcome. The slaughter of "in contact" stock has shown how much more frequently than was suspected latent disease may exist, and how easy it is for ignorant or selfish men to dispose of a decidedly affected animal whilst retaining a herd nearly every member of which, though giving no sign of disease, is capable of spreading infection. Quite recently we heard of a case which most forcibly illustrates the danger of these latent cases and the difficulty of coping with them. By little more than chance a diseased carcase was found in a slaughter-house; it was traced back to a herd of twenty cows; these were examined and one was found "suspicious." It was killed, and the diagnosis verified; the remainder were then slaughtered, and no less than sixteen were found to present latent disease in various stages of development. If the first animal had not been detected the herd would not have been suspected, and a sale might have distributed sixteen possible centres of disease to as many different districts. How many undetected similar cases are now in existence no one can say, but this one is sufficient to show what a difficult task has still to be mastered by the Board of Agriculture.

In London a new order has just come into force which prohibits movement of cattle entirely from 7 p.m. to 5 a.m., and permits movement through the day only by licence signed by a veterinary inspector. This order is well calculated to stop the surreptitious movement of diseased animals, and to lead to the discovery of hidden disease. It may well be enforced in other districts in which unreported outbreaks may be presumed to exist. During the latter days of the Foot and Mouth Disease, which was extinquished by restrictions on movement of cattle, Pleuro-pneumonia reached perhaps its lowest register. From this fact it is evident that the movement of diseased animals is a great cause of the spread of the disease, and we may draw the conclusion that some such regulations as these which put a stop to 'foot and mouth' might beneficially be added to the compulsory slaughter order for the extermination of pleuro-pneumonia.

RABIES

Has again made its appearance in London after a few months absence. No doubt the Muzzling Order may be credited with its temporary extermination, and no doubt it may again be successful if the disease appears with sufficient frequency to alarm the public, and to provoke the authorities to action. This alternate prevalence of disease, with a few months extinction as the result of muzzling regulations, will probably be our normal condition until stringent rules as to the importation of dogs are enforced. Ireland seems to be getting nearly as bad as some continental countries. Rabies is there very prevalent, and dogs pass to and fro in large numbers through our western ports. The same unchecked importation occurs from European countries in which rabies is constant. It follows that even if we succeeded in destroying every infected dog in our island we should nearly have a remission of disease until it was again imported. There are, no doubt, difficulties in the way of legislation, but they are not insurmountable, and it is the duty of the veterinary profession to assist in bringing popular opinion up to the necessary cultivation for legislative action. Until the public are properly informed as to the danger of a disease, and properly educated as to its nature, no legislation of a really effective kind can be expected.

A UNIVERSITY DEGREE.

There is a University in London which only examines and grants degrees. It was apparently founded to enable qualified men to obtain a degree after gaining the necessary education in any way they thought best. It required no residence in London, and imposed no other test than its examinations. Such a university seemed to be based on the very fairest and widest foundations, but it has not given satisfaction, and now it is proposed to establish another. The argument seems to be that a University should teach as well as examine, and an influential party are determined to form in London a teaching and examining University. Probably such an institution will be founded either by the combination of various established teaching bodies or by the conjoint action of the present University and the leading teaching Colleges. Whenever the new university arises it will have affiliated to it a number of faculties—Arts, Science and Medicine. It is a qnestion worth considering whether the veterinary profession might not keep an eye on the coming University of London, and endeavour to obtain a connection with it. A Faculty of Veterinary Science with a University degree would give a higher position than our present diploma, and if the Royal College of Veterinary Surgeons could arrange for some such position without quite committing suicide it might be of great advantage to the profession.

CASES AND ARTICLES

FATAL ABDOMINAL HŒMORRHAGE.

On Sunday last at noon I was called to a chestnut gelding which was supposed to be suffering from "gripes." I found a good looking hack-hunter standing in a loose-box, hanging back from his manger and sweating a little. The day was warm and the horse had one thick rug on. Pulse 48, and extremities cool. Signs of pain were slight, but he occasionally looked round, and had been pawing. The tail was raised and quivering slightly. He had refused his morning feed, had not been seen to stale, and I was told had on the day previous done a journey of about ten miles—carrying a light weight—rested an hour or two, and then trotted home without any signs of pain or fatigue.

Diagnosing the case as one of ordinary indigestion and colic I gave a drink containing stimulating and anti-spasmodic medicine. I also advised that a five drachm physic ball be given, which was done about 3 p.m.

I saw the horse again at 9 p.m., when he was still in pain. Pulse 56, respirations about 30 and spasmodically accelerated every few minutes. Sweating on neck, sides and quarters. Had lain down, and risen again in a few minutes, during the afternoon. The extremities were cold and the tail still remained raised and quivering. The conjunctival membrane was injected but the buccal membrane was pale. I gave another stimulant drink which he took easily.

At 11.30 I made another visit and found a decided change for the worse. Sweating was more profuse, the skin and extremities were cold. Pulse at the jaw could not be felt but artery was not 'wiry' although small and hard. The membrane of the mouth was blanched. The horse moved round the box readily and lay down and rose again frequently. No sound of peristaltic action could be heard, and rectal examination showed only an empty gut which seemed extra flaccid and dilated. Diagnosis now was that some internal rupture had occurred, but I could not quite reconcile the symptoms with a lesion of the liver or stomach or large intestine, which were the organs my mind immediately suggested as possibly injured. Pain was not well marked, but the sweating suggested it might be greater than was indicated by other signs. My assistant was left to watch the case and an anodyne draught left to be given if the signs of pain increased. This draught was given about 1 a.m., and whilst the head was raised the horse fell and turned completely head over heels but rose again, apparently uninjured. The pulse was now quite imperceptible but the heart was beating 85 per minute. Death occurred about 5 a.m. on Monday.

The *post-mortem* examination was made on the afternoon of the same day by my assistant. Immediately the abdomen was opened blood escaped, but as the intestines were removed roughly by a slaughterman the source of the hœmorrhage was not discovered. The spleen was enlarged to about four times its normal size but was not altered in consistency, so the conclusion was that this organ was not acutely affected. It was quite intact. The colon was not discoloured but the veins in its grooved portion were enormously distended. No other organ was altered in any way.

I concluded that the blood probably escaped from the mesenteric artery but this is only a guess.

The interesting question is—when did the rupture occur? I judge from the symptoms that it took place sometime between my visits of 9 and 11.30 but the sweating seen at the commencement of the case rather suggests that the blood-vessel had partially given way earlier in the case. I do not clearly see whether the symptoms point to a case of hœmorrhage giving rise to abdominal pain, or to a case of colic in which the rupture happened as a complication towards the end.

I much regret neglecting to note the condition of the mucous membranes at my first visit, but the slight disturbance of pulse caused me to jump to the conclusion that only a case of simple colic required attention,

W. H. J.

ELECTRICITY IN CANINE PARALYSIS.

In January of the present year I was called by Major General ———— to attend a pug bitch, 8 years old, (his wife's pet) suffering from distemper fits. I found it in a severe fit: and whilst I was there it got better and had another. I gave it a dose of bromide of potash, doses of which were given every three hours, and a cooling lotion continously applied to the head. The next morning I found my little patient had had no fit since my previous visit, but the cornea of one eye was clouded, the eyes and nose discharging, and it was suffering from an irritable cough. I advised dark room, warm cloths to chest, plenty of good beef tea, &c. I prescribed liq. ammonia, tinct. camph. co. and tinct. cinchon. twice daily, with 3 grain quinine pills every night. These pills I always give in this disease—from start to finish. From this 'day my unfortunate patient lost the use of its hind limbs, and as the treatment of this is my only excuse for writing, I will only add that one eye ulcerated, was treated antiseptically and healed, leaving a cataract. At the end of a fortnight chorea was apparent, affecting chiefly head and fore legs. I gave once daily tinct. nux vomica and Fouler's sol. arsenic; once daily Parrish's food; and at night the pills. Enemas had frequently to be given. In three weeks the chorea was scarcely observable, but as the paralysis was no better I had made an electric belt, to be fixed round the loins. This was followed by improvement so rapid, I could scarcely believe my own eyes. The dog had been unable to walk for six weeks when belt arrived, and in five days it ran across the room in a drunken

manner, and in six weeks was perfectly well. I did not see it after the first fortnight the belt was used, but the owner writing six weeks after thanks me "for what we must term a wonderful recovery." I saw this dog a fortnight since and and should not have known her had my attention not been called.

I have never seen a case recorded where electricity has been successfully used in the cure of paralysis as a sequel of distemper in the dog.

J. B. T.

VETERINARY SOCIETIES.

ROYAL COUNTIES VETERINARY MEDICAL ASSOCIATION.

*AN ENQUIRY! WHAT HAS CONTEMPORARY VETERINARY SCIENCE DONE TOWARDS THE ADVANCEMENT OF THE HEALING ART, AND WHEREIN IS THERE SCOPE FOR FURTHER DEVELOPMENT?

By J. SUTCLIFFE HURNDALL, M.R.C.V.S.

(Continued from page 9).

To commence with, I invite your attention to a few facts about M. Pasteur's prophylactic against hydrophobia. In 1881 Pasteur announced that in cases of hydrophobia he had discovered a special microbe; but in 1887 the English Commission, in its report (p. 21), stated that M. Pasteur *believes* that the virus of rabies is a living micro-organism." So you will observe that after publicly and definitely declaring he had discovered a microbe peculiar to the disease, in six years he gradually waters down a positive affirmation to a shadowy belief; this is the gentleman of whom Sir James Paget is reported in *The British Medical Journal*, of July 6th, 1889, to have spoken at the meeting at the Mansion House, held July 1st, 1889, as follows: "Those who knew him (Pasteur) would rely on his word without any question." Again Pasteur appears to have been undecided and ever changing in his methods and procedure, and not, as you have a right to expect a scientist should be, positive and definite; to quote from an address delivered by Dr. Dulles before the Philadelphia Medical Society in January, 1886: "At first it was in the brain that the virus was to be obtained in perfect purity; then trephining and intradural inoculation was the sovereign method; then intravenous inoculations were said to simplify the matter; then blood was a good virus; then smaller quantities produced fiercer rabies; then inoculations in series modified the virus after many variations; then a few monkeys and rabbits did the work; then rabbits alone sufficed, while the virus was weakened by drying the cord. And to crown all, forgetting the traditions of his own work in regard to charbon and chicken cholera, Pasteur said that the protective character of his virus depended upon a reduction in quantity and not in the virulence of the virus." In further proof of Pasteur's entire lack of precision I quote from Mr. Benjamin Bryan on *Variations in the Treatment*: "The number of inoculations and the mode of making them have been varied several times, in itself an evidence that M. Pasteur's mind has never been clear as to the precise form his preventive treatment should take. Meister ——— received twelve injections in ten days, two on each of the first two days, and one on each of the others. But although that case is still vaunted as a successful one, the method adopted therein was almost immediately varied, and the second process was one inoculation daily for ten days. After an interval the intensive treatment under which Goffi and many others died, was adopted. In this the process covered eleven days, three injections of virus being made on the first and second days, two on the third, fourth, fifth, eighth, and ninth, and one on each of the other days. According to the English Committee when it appeared possible that it might be dangerous this process was abandoned for a fourth under which each patient was inoculated daily for fifteen days, twice on each of the first five, and once on each of the others. Besides these four changes of the whole formula, the strength of the viruses also have been varied with regard to the days on which they were used, and it is clear that M. Pasteur's whole procedure has been based throughout on guess work of the most pronounced kind." These facts furnish very powerful arguments against the truth and reliability of M. Pasteur's vaunted prophylactic, but when we come to examine statistics as to the average mortality in France the bubble bursts, and the truth will out. Dr. T. M. Dolan in his Brochure entitled 'Pasteur and Rabies' deals with this part of the question in the following manner. "What was the mortality in France for thirty years before M. Pasteur took up his work? For if Pasteur has saved in France during the five years 900 lives, then there ought to have been an equal or proportionate mortality in France in antecedent years. The illustrious Tardieu in a report presented to the Minister of Hygiene in 1863 maintained that twenty-five cases of rabies per year approximately represented the mean mortality of France. 'It is not the absolute expression of truth' he said 'but it is not far from it; for thanks to the incessant stimulation of the administration, and to the support of the local authorities and the Councils of Hygiene of the arrondissements replies have been made to the inquiry from all the departments." This was before Pasteur commenced his operations; from the professional gentleman who wrote a very clever article entitled 'Credulity of Doctors' I learn that "the first year of his operations the mortality from hyrophobia in France, among Frenchmen, increased to 36, 26 of them having been subjected to Pasteur's treatment! So that as Drs. Peter and Lutand allege, Pasteur is actually responsible for an increase in the number of deaths from hydrophobia in France!" To quote once more from Dr. Dolan's little work we have the following: "If we take the statistics of hydrophobia in the department of the Seine before Pasteur's prophylactic came in vogue and the statistics subsequently, we shall be able to demonstrate with mathematical precision the complete failure of the Pasteur system in a given area. In this department M. Pasteur has been operating under the the most favourable conditions, that is to say, he has the assistance of the police laws to keep down the wandering street dog, and we have to chronicle the strange circumstance that M. Pasteur, the preventor of hydrophobia, has had to encourage the Prefect of Police in the seizure and destruction of stray dogs—a satire if it were not so tragical. M. Dujardin Beaumetz"—who being an Officer of Health must be accepted as an authority—"gives us the means of comparison. The deaths in the department of the Seine from 1880 to 1889 have been as follows:—

1880—4
1881—21
1882—9
1883—4
1884—3
1885—22
1886—3

* Read at the Meeting at Didcot, June 26th.

1887—9
1888—19
1889—6

Total 100 in ten years.

I may here quote the opinions of Professor Michel Peter on these statistics :—'I have said, repeated, and professed that the inoculations—pretended to be anti-rabic—of M. Pasteur are in principle nonsense and in practice would be a deception. Here is the proof:—My learned colleague M. Dujardin Beaumetz has given the figures relative to deaths from rabies in the Department of the Seine for the last ten years. These are the official figures, and if we count the deaths for the four years which have preceded the use of the method we have

1882—9 cases
1883—4 „
1884—3 „
1885—22 „

Total 38 cases.

Now if we take the figures for the four years in which we have enjoyed the advantages of 'the method,' we have—

1886—3 cases
1887—9 „
1888—19 „
1889—6 „

Total 37 cases.

But the better demonstraton is that the sum of the deaths during four years, 1880-3, is also,—thirty eight cases—thus we have for this Department—

For the four years before Pasteur, 38 cases.
For the four years after Pasteur, 37 „

Is it possible to give a clearer proof of the inutility of the method? But here is another point of higher importance still, and again quoted from the text of M. Dujardin Beametz; 'The observations of cases of rabies in Paris in 1889 include three children and three adults; of the six sufferers who perished three were under the anti-rabic treatment and three were not taken to L'Institute Pasteur at all.' Now what need we say after this, the demonstration is brutal in its simplicity. M. Dujardin Beaumetz ends his report: 'As Pasteur's treatment does not prevent the persistence of hydrophobia, we must still depend upon the execution of the law of July 21st, 1881, which orders the killing of every dog which has been bitten by a rabid animal."

It will be remembered that I have already alluded to certain statements made by Sir James Paget in favour of Pasteurism at the Mansion House, called together at the instance of the then Lord Mayor of London; which was also attended, I believe, by Professor Huxley and many other distinguished scientists, physicians and surgeons. I am sure that you will all agree with me that when a gentleman of such renown as Sir James Paget gives public utterance to his views upon matters of public interest concerning which he is presumed to speak with authority, he is expected to exercise the discrimination of a careful observer, and not to allow himself to be carried away with enthusiam In this very speech which he delivered on the occasion now referred to he is reported to have said that the per centage of deaths by hydrophobia to bites were "in some cases not more than 5 per cent., in others 15, in others 20,and in some cases, especially in those bitten on hands and face and exposed parts, 50 to 60 per cent." When the Royal Commission, of which Sir James Paget was Chairman, made its report, it was stated that the mortality from bites on the head and face is reckoned at 40 out of 186 cases or 21½ per cent.' this being so it is difficult to understand why Sir James should previously have estimated the number at three times that amount; it certainly does not serve to impress one with much confidence in his carefulness as a scientific observer. Sir James also stated on the authority of M. Pasteur that the latter gentleman had inoculated 7000 persons bitten by rabid animals. Referring to this claim, my friend the author of the before-mentioned article on the 'credulity of doctors' writes: "Sir James Paget admits that 100 of the 7000 cases treated by a Pasteur may have died of hydrophobia, and assuming the normal mortality in persons bitten by mad dogs to be 15 per cent., he says had these 7000 not been subjected to Pasteur's protective treatment 1000 would have died in place of 100. Thus he says, 900 were as absolutely saved as if they had been snatched from drowning? This is as much as to say that during the four years from 1885 to 1889, 1000 per-would have died in France from hydrophobia had it not been for Pasteur's beneficent operations, that would be at the rate of 250 deaths from hydrophobia every year in France alone, or if we deduct 50 persons from this number for the deaths that would have occurred among Pasteur's foreign patients the annual number of deaths from hydrophobia in France would have been 200. But as trustworthy statistics show that previous to 1885, when there were no Pasteur inoculations, the annual average mortality from hydropobia was only 30, (from 1850 to 1862 it was only 25) to believe the average annual mortality would have suddenly mounted up to seven fold what it used to be before Pasteur began his operations, in other words that Pasteur annually prevented 170 dying of hydrophobia who otherwise would have died, is to display an amount of credulity which we could hardly have believed possible in this age of little faith." There is much more, not only with respect to Sir James Paget's advocacy of Pasteur's method, but also that of other eminent men which might be critically dealt with, all of which would serve to demonstrate that M. Pasteur has failed, and that his system of so-called anti-rabic inoculation is a delusion; moreover that in this direction, nothing has been done to advance the healing art. In concluding this part of my subject I present for your inspection printed statistics issued by a Journal, called *The Zoophilist*, showing that no less a number than 210 persons have died after being subjected to Pasteur's treatment; a truly tragic list—one that ought to come under the notice of every member of our profession in the world; for have we not all been taught to look up to Pasteur as a reliable and trustworthy scientist; as a benefactor to his race, and one of whom it would hardly be considered sacrilege were we to bow down and worship him, on such a high pinnacle of fame has he been raised in the estimation of a very considerable number of our own fraternity. I boldly affirm that it is high time such trifling with valuable human life should be discontinued; if the French Legislative Assembly does not take measures for the protection of its own people against a mere scientific experimentalist, at least let us in our professional capacity do all we can to hinder our fellow countrymen from sacrificing themselves on the altar of Pasteurism; if protective measures against rabies are called for, they are at disposal and that without any attendant risks of self immolation. Do you ask me, where? I reply by reference to therapeutics and hygiene? Probably you will laugh at such an assertion; I am prepared for anything of that sort; it will not be the first time that derision has been poured forth under similar circumstances and, may be, it won't be the last; but when the science of therapeutics is properly understood and more generally accepted, the difficulty which at present exists in the minds of so large a number to receive such a statement as worthy of credence will not stand in the way of its acceptance; and even the much dreaded

rabies will have to succumb, as it has already done, to the power and efficacy of a drug.

And now I pass on to a criticism of what to me looks very like another bacteriological failure; namely anthrax vaccination, this was the name given to it by Pasteur in 1881. I have already stated that one had become sanguine in the hope that the protective value of anthrax vaccination had been substantiated and confirmed but the results of a number of test experiments conducted at various places on the continent serve to show that such a hope has no solid foundation; and more recently in our own country the value of protective inoculation for black-quarter has proved to be very uncertain, and I think from the fact of its uncertainty I shall be justified in asserting that for all practical purposes it is abortive: full particulars appear in the editorial of the Journal of Comparative Pathology and Therapeutics edited by our accomplished *confrère* Professor MacFadyean, March 1891 Fifteen animals belonging to Mr. Laithwood of Congleton were vaccinated on the day following that upon which the vaccin was received—within three days five of the animals died of typical black-quarter.

It is further stated in the article referred to as follows: "that the death of these animals was caused by the inoculation there can be no manner of doubt, as Mr. Laithwood informs us that in each case the well known emphysematous tumour had its starting point at the seat of inoculation."

I submit that although numbers of animals may have been vaccinated with similar vaccin and that without fatal results, the loss which fell upon Mr. Laithwood as the result of his experimentation is quite sufficient to condemn the system of inoculation with vaccin of this strength or quality as extremely faulty, and above all things it cannot be described as protective inoculation; rather has, it merited the designation of destructive inoculation. With respect to the protective value of anthrax vaccination I am indebted to my friend Dr. J. H. Clarke of London who has compiled in pamphlet form, from various sources some valuable information on the subject; and I shall take the liberty of quoting therefrom. A series of experiments were performed in Hungary under the watchful supervision of a government commission, with the view of testing the value of Pasteur's vaccine as a protective agent, and the following is the "General Summary of the Hungarian experiments."

"If we look only at the rate of mortality among the animals after the control infection among the inoculated 1·45 per cent, and among the non-inoculated 93·3 per cent—the difference is so striking that the advantage of inoculation seems proved. But there are other things to be considered.

(1) Some animals died after the first or weaker inoculation, and at Kupavâr fifteen died after the second or stronger.

(2) Deaths from other diseases than anthrax, or, more strictly speaking, deaths in which the post-mortem appearances were those of other diseases, oocurred exclusively amongst inoculated animals. From this it follows that the fatal issue of other severe but latent diseases is accelerated by a protective inoculation?

(3) Some of the protected animals died of anthrax after the control inoculation. Therefore the protection afforded is not perfect. And further in the flock of sheep exposed to ordinary infection the mortality from anthrax was half as great among the inoculated as it was among the non-inoculated: and the mortality from other diseases was three times greater. This proves that the protection only lasts for a very short time, and that the vulnerability to natural infection is different from that to infection of virus. It proves also that the protective inoculation weakens the constitution of the animals and makes them more susceptible to other diseases.

(4) It is a question how long a time must elapse after inoculation before it would be safe to use the flesh and milk of inoculated animals for food.

(5) There is a possibility that the protective inoculations will help to spread the disease. The Committee was far from rejecting M. Pasteur's method altogether, and they hoped that when perfected it might still be productive of great results. But Dr. Rôszahegyi says, "Everything considered I entirely concur with the opinion of the Committee, that the immediate general application of Pasteur's method in the form demonstrated to us here would be precipitate; that it should least of all, be recommended and disseminated under the sanction of the state, and that with regard to the other possible sanitary evils, the performance of protective inoculation by private individuals on their own accounts should be completely forbidden, and only allowed under the condition that such operations should be performed by a Government Official acquainted with the subject, and under his superintendence?" This was in the year 1882 and now in 1891, according to Professor MacFadyean, we find things remain much about the same, for in his editorial on protective inoculation for black-quarter, the following very suggestive sentence appears: In Mr. Laithwood's animals the vaccine, as judged by the immediate consequences to five out of the fifteen animals operated upon, far over-stepped the limit of safety, and it would have been natural to conclude that the surviving animals must have been left very solidly protected. And yet they, or at least two of them were either not protected at all, or so slightly protected that they fell victims to natural infection."

Now, Gentlemen, it seems to me that Professor Mac Fadyean has hit upon the really weak point, in the last sentence of the quotation, of the so called protective inoculation, at all events as now conducted. So far as I have been able to discover, no one denies that Pasteur's vaccines protect against infection by inoculation, but what about natural infection. I am of opinion that against natural infection these inoculations are useless, and that, after all, is the chief centre of interest to the every day practioner; we want to be able to go to our clients, and say, "A system of inoculation has been discovered which will protect your stock against black-quarter and anthrax; allow me to perform this operation for you and there will be no further cause for anxiety on your part about this terribe form of disease." As it is we can say nothing of the sort; all these experimentations and all this sacrifice of valuable animal life and property are so far valueless from a practical standpoint; this is alike proved by the Continental experiments and by Mr. Laithwood's test of Professor McFadyean's vaccine, It further appears very uncertain whether any of the various strengths of Pasteur's vaccines are protective against really virulent inoculation; and the results of the Continental experiments unquestionably point to very considerable risk of a large number of animals dying as a consequence of vaccination, which is confirmed in Mr. Laithwood's experience. In the face of facts and doubts such as these, who can say that bacteriology has done much of a satisfactory nature to advance the healing art!

(To be continued.)

Dr. Güsakoff highly recommends painting the soles with tincture of iodine as an infallible remedy for offensive sweating of the feet. A single application sometimes proves to be sufficient to effect a cure of this disagreeable affection. Dr. Güsakoff affirms that obstinate cases never require more than three paintings, repeated once daily for three consecutive days.

MIDLAND COUNTIES VETERINARY MEDICAL ASSOCIATION.

At the meeting of this Association held at Worcester, on May 22nd, Dr. FLEMING read the following paper on

INFECTIOUS PNEUMONIA OF THE HORSE.

I am about to draw attention to a form of Pneumonia which has not yet, so far as I can ascertain, found a place in English veterinary literature, but which has now for some years much engaged the attention of our Continental colleagues—especially those in Germany and France. Why it has not received notice in this country, I do not know, for of its existence among our horses there cannot, I think, be a doubt. I remember many years ago, that the stables of a certain horse-dealer in Manchester were scarcely ever free from sickness, which was generally in the form of Pneumonia; it appeared to prevail all the year round, and caused heavy losses. In large agglomerations of horses, I have since observed lung affections to be the most serious and the most prevalent maladies, and to my knowledge certain barracks—and even particular stables in these—have been notorious for the number of cases of Pneumonia, of a low typhoid type, constantly occurring in them. But rarely has infection been suspected, and the cause has generally been ascribed to insanitary conditions of the stables or their surroundings.

In nearly all the domesticated species of animals an infectious Pneumonia has been recognised; for instance, in bovines we have the very destructive Pleuro-pneumonia; pigs are decimated by the so-called Pneumo-enteritis; an infectious Pleuro-pneumonia or Pneumonia has prevailed among goats in North and South Africa and in India, as has been from time to time reported in the pages of *The Veterinary Journal;* in the dog, one of the forms of the so-called Distemper—a most infectious malady—chiefly implicates the lungs; sheep are attacked by a Pneumonia or Pleuro-pneumonia when numbers are stabled together—as they often are on the Continent—which resembles the infectious disease of the ox, and spreads from one to another; Perroncito has described an infectious Broncho-pneumonia in calves and young pigs;* and so with other species, in which Pneumonia is either primary, or a secondary phenomenon in many of the specific febrile diseases.

In recent years, too, wide-spread outbreaks of Pneumonia in man have been described, and the extension and maintenance of these have been ascribed to infection. It has been remarked that, in these invasions, the acute Pneumonia present was marked by a very definite course, the symptoms and the pathological changes indicating these being more uniform and constant than is the case in any of the more common febrile disease. And it has been insisted upon that this fact seemed in itself to point to the probability that the whole affection is determined by the action or influence of some micro-organism, which has a definite and fixed period of activity. True, it is admitted that the identity of this micro-organism has not yet been demonstrated beyond dispute, although ascertained facts point strongly to two special forms as possibly the specific agents in the production of acute Pneumonia in man.

One of these is known as Friedländer's pneumococcus, and consists of elongated, oval cells, provided with a very distinct capsule. This micro-organism, when isolated, cultivated, and injected into the lungs of certain animals, has—in a large majority of instances—produced acute Pneumonia, the inflamed area containing the same form of coccus in abundance. The second form of micro organism consists of micrococci which always occur in pairs, and are hence named "diplococci"; these also have been shown to bear a definite relation to the development of Pneumonia in man and certain animals. It is acknowledged, however, that their occurrrnce is not invariable, and similar forms have even been found in the healthy air passages; from which fact some observers are inclined to believe that the cocci may be occasional parasites of the normal mucous membrane of the air-passages, which find in the inflammatory changes of Pneumonia the best nidus for their development.

However this may be, as has been remarked, many instances have occurred in which Pneumonia has been epidemic in a district, and it has been observed that the disease may even recur among the inhabitants many years afterwards, if the dejecta of a previous epidemic be brought to light, as by the disturbance of soil, foul linen, or old stores. Although many cases occur singly, it sometimes happens that the disease runs through a household almost as freely as an ordin ary Catarrh, and it usually follows a very regular course if it remains uncomplicated. (*a*)

With regard to the horse, it would almost appear as if this specific Pneumonia were on the increase; and there is reason to believe that it is included as one of the forms of the Protean malady, Influenza, being that which is supposed to be more or less present among horses all the year round. In barracks, it is assuming larger proportions, and particularly in Germany.

In the Veterinary Report of the Bavarian Army for 1888, reference is made to the important share this infectious Pneumonia has in increasing the mortality among the horses every year. Its protean character, the difficulty of diagnosing it, and its variable course, are dwelt upon. It is noted that it usually begins with inflammation of the upper air-passages, accompanied with intense fever, but an epizoöty is sometimes ushered in by some cases of Pneumonia, which are likely to be considered as sporadic. The disease is most serious among young horses, and slight colds among them greatly favours the spread of the infection. The extension and gravity of the malady are all the greater, it is remarked, if, when it first breaks out, the horses have been exposed to severe work which has strained lungs and heart. But it is observed that horses which recover have acquired an immunity that may last for a long time. It is stated that the period of incubation varies between six and fifteen days; and in order to suppress an outbreak, it is recognised as extremely important that the first cases should be diagnosed immediately, in order that they be isolated and properly treated, and if the work of the yet healthy horses be heavy, to ease it. (*b*)

In the Prussian army in 1889. there were 3,165 cases of Chest-plague *(brustseuche)* admitted, and the mortality was 3·7 per cent., the disease having increased from year to year during the last seven years, notwithstanding the strictest hygienic measures being enforced.*(*c*) And it would seem to be somewhat the same in France.

Although for years considered one of the forms of Influenza, or confounded with ordinary Pneumonia, its existence has been at times suspected, and itis probable that d'Arboval had witnessed it in the first quarter of this century.(*d*) In France it was long distinguished from

* Journal Vétérinaire de Lyon, 1885.

(*a*) Fowler's *Dictionary of Practical Medicine.* Art. Pneumonia.

(*b*) *Wochenschrift für Thierheikunde und Viehzucht.*

(*c*) *Monatschefte für Thierheilkunde,* Band ii., Heft 2.

(*d*) *Dictionaire de Méd. Vetérinaire.* Bruxelles, 1827. Page 608.

ordinary Pneumonia by such qualifications as *bilious. ataxic*, or *adynamic Fever*, and was also recognised as *hospital* or *stable Pneumonia (Pneumonie d'hôpital* or *d'ecurie)*; while in Germany it was commonly known as *Chest Epizoöty*. In both countries its study has been going on independently, though at first only extensive outbreaks were recorded. One of the earliest of these was reported in Belgium by Leconturier, who witnessed an epizoöty which continued from October, 1839, to the end of February, 1840.(*a*) Soon after Lafosse, of the Toulouse Veterinary School, in making some remarks on pneumonia, wrote: "I might also here allude to the specific pneumonia, ... but I have never seen this affection.(*b*) In 1841 there was an epizoöty of pneumonia among the horses of the French 8th Hussars, which in a short time killed thirty-one of them; this event was discussed at a meeting of the Paris Central Veterinary Society in 1847, but no opinions were expressed as to the infectious character of the disease.

Professor Siedamgrotzky, of the Dresden Veterinary School, according to Trasbot,(*c*) to whose investigations I acknowledge myself largely indebted for information with regard to this subject, was the first to give special notice to infectious pneumonia, in a paper published in 1882,(*d*) though under this designation he included this so-called "stable-pneumonia" with that caused by foreign matters, broncho-pneumonia, the pneumonia often complicating Influenza, the pleuro-pneumonia of young horses, etc., in fact, all the inflammations of the lungs other than ordinary pneumonia. In the following year, Professor Dieckerhoff, of the Berlin Veterinary School, studying at the same time typhoid fever and infectious pneumonia among horses, remarked that a certain number which had recovered from the first succumbed to the other, and reciprocally; while others which were convalescent from the pneumonia died afterwards of the fever. From this circumstance, he was inclined to group these affections of the lungs under the vague denomination of "chest-plague" *(brustseuche)*. Professor Lustig, of the Hanover Veterinary School, about the same time recognised, two forms of pectoral influenza—one peculiar to typhoid fever, and the other the chest-plague. In 1884, Cagnat, of Saint-Denis, France, also distinguished a contagious pneumonia from typhoid fever in the horse;(*e*) and in 1886, M. Brun reported to the Société de Médecine Vétérinaire Pratique, that for three months he had been dealing with pneumonia of an infectious character, and different from that of typhoid fever. In the discussion that ensued,(*f*) the opinion prevailed that there was an enzoötic form of Pneumonia, distinct from the pulmonary localisation of so-called typhoid fever. Delamotte, in the same year, made a good clinical study of the malady, and two years later Joly drew attention to a series of cases he had met with, as did also Benjamin and Mesnard; while Leclainche (*g*) pointed out that in Germany and Italy, no less than in France, an infectious pneumonia had been recognised in horses.

But from 1880, Trasbot,(*h*) in his clinical lectures, had described infectious pneumonia *(pneumonie franche)*, and from the pulmonary localisation of typhoid fever.

In Italy, Lanzilotti-Buonsanti and Peroncito (*a*) described it in 1889; but in Germany, Friedberger and Fröhner (*b*) had, in their text-book on veterinary medicine, published in 1886, mentioned the discovery of a microbe in this form of pneumonia; and Schütz,(*c*) in 1887, announced the results of his investigations and experiments with regard to it, agreeing with Dieckerhoff as to the specific and infectious nature of the malady; while in 1889, Hell (*d*) announced his having succeeded in cultivating the microbe already mentioned, and having practised preventive or protective inoculations with it.

So that it will be seen that increasing attention has been devoted to this form of pneumonia in the horse, and there is a strong consensus of opinion among our Continental colleagues not only as to its virulence, but as to its greater prevalence than in former years, particularly in Army stables.

I have already alluded to its ravages among the horses of the Bavarian and German Armies in 1888 and 1889, and to its increase among them during the previous seven years, notwithstanding the most careful and energetic measures. In the report of the German Army for that year, (*e*) it is remarked that the supposition as to a miasmatic development of the disease, or rather, the existence of a stable miasma, has been proved by experience. The origin and spread of the affection are exclusively due to contact—directly or indirectly—of sick with healthy horses, and its infectious nature is now considered beyond argument. The fact that it prevails in stables where the rules of hygiene are scrupulously attended to, while it is seldom and very exceptionally seen in some which are badly kept, is adduced as proof. Of fifty-four fresh outbreaks in the German Army stables in 1889, thirty-six could be ascribed to infection previously existing in stables; and the chief and inexhaustible source of the contagion in military stables, is asserted to be its presence in the stables of civilians in large towns. The disease radiates from the larger to the surrounding smaller garrison towns; and it is added that its eradication from among military horses is not to be expected, so long as no corresponding repressive measures are adopted with regard to civilians' horses.

When it manifests itself in a stable, predisposition does not seem to count for much in its extension, as it appears to attack young and old, and vigorous and debilitated animals indifferently; and it arises and maintains itself without any appreciable external cause; though from its appearing most frequently amongst large agglomerations of horses kept in stables, and by the cohabitation of sick with healthy animals in these, the infectiousness of this stable pneumonia had long been suspected. For it manifests itself, as already said, among horses which are most carefully tended, so far as hygiene is concerned, which have not been exposed to any of the causes of ordinary pneumonia, and which have only been allowed, from some cause or other, to remain during a certain time in their stables. Though it shows itself in the most spacious, well-ventilated stables, yet it is most severe when it is introduced into those which are badly

(*a*) *Journal Vét. et Agric. de Belgique*, 1845, page 648.

(*b*) *Journal des Vétérinaires du Midi*, 1847, page 215.

(*c*) *Nouveau Dictionnaire Pratique, etc., Vétérinaires*, 1890. Art. Poumon.

(*d*) "Ueber Infectiose Pneumonien," bei Pferden." *Deutsche Med. Wochenschrift.*

(*e*) *Archives Vétérinaires*, 1884.

(*f*) *Répertoire de Police Sanitaire*, 1886.

(*g*) *Recueil de Méd. Vétérinaire*, 1888.

(*h*) *Nouveau Dictionnaire de Méd., etc., Vétérinaire*, Tom xviii Art. Poumon.

(*a*) *Pneumonite de Cavallo.*

(*b*) *Lehrbuch der Speciellen Pathologie und Therapie der Hansthiere.*

(*c*) *Archiv. für Wiss. und Pratik. Thierheilkunde*, 1887, page 26.

(*d*) *Zeitschrift für Veterinarkunde*, 1889, Heft i.

(*e*) *Monatschefte für Thierheilkunde*, Band ii., Heft 2.

ærated and cleaned. Trasbot has seen it frequently developed among horses, some of which were suffering from extensive suppurating wounds, though he does not look upon this positively as cause and effect, but thinks the relationship may be something more than a mere coincidence; and the designation of "hospital fever" sometimes given to it supports somewhat this view.

When it appears among a lot of horses it kills a certain number, and cases occur at short intervals, the disease assuming an enzoötic character — Cagnat, in France, having seen it attack twelve of fifteen horses in a few days. The introduction of a sick horse among healthy ones is generally followed by an outbreak more or less serious, the intervals of time between the occurrence of new cases being dependent on circumstances; but it has been noted that sometimes eight, ten, or fourteen days will elapse from the appearance of the first case until the manifestation of others, and these are generally among the horses nearest to this initial case, though not always so. In some stables the malady is much more infective or spreading than in others; and in some, again, it is more readily checked than in others. It subsides more rapidly when, by the removal of the sick horses from their midst, the others have more space allowed; it also, of course, disappears more quickly from a stable when a large number are infected at the same time; and the cases towards the termination of the outbreak are not of such a serious character as those at its commencement. In regiments in which the malady often rages, subsidence is slow, especially if they are in barracks, and the stables in them are not well ventilated; in others which are seldom visited by it, or which are in good barracks, or standing in the open air, it disappears quickly.

The infectious nature of the disease is, clinically, not a matter for doubt; but the same can scarcely be said for it from an experimental or bacteriological point of view. Schütz has succeeded to some extent in demonstrating that the disease is inoculable; for with fluid obtained from the lungs of horses which had died of it—this fluid containing pneumococci and the microbes of pus—he inoculated mice, which succumbed in two or three days; with the blood of these he has inoculated other mice, which quickly died, and in their blood he has found the bacteria of infectious pneumonia. Having made twelve successive inoculations of this kind, from the blood of the last he inoculated peptone jelly, with the result that after some days' cultivation there was a white flocculent mass formed, consisting of the bacilli. With a Pravaz syringe he injected four cubic centimetres of this cultivation into the lung, through the thoracic wall, of a two-year-old horse, his object being to obtain necrotic centres, and the development of gangrenous pneumonia. The horse died on the ninth day, and on examination there were found purulent pleurisy and gangrenous patches in the lung, around the inoculation points. Bacteria were discovered in the lungs, bronchi and trachea, and in the larynx they were so abundant that it looked as if there were a pure cultivation of them there; they were also found in the bronchial glands, spleen, liver, etc.

This demonstrated, so far, that infectious pneumonia could be produced by inoculation, and a second experiment on a six-months-old foal, on which experiments had already been made, with regard to strangles, gave similar, though less precise results; but a third on a two-year-old colt yielded exactly the same results as with the first. From his experiments, Schütz concluded that:—

1. The pathogenic agent in infectious pneumonia of the horse, is a small oval bacterium found in the lungs and other organs.

2. This organism can be cultivated in flesh-peptone gelatine, and on agar-agar at 35° Cent. temperature.

3. The fluid obtained directly from the diseased lung and inoculated in mice, kills them in twenty-four to forty-eight hours, producing an infectious material which maintains its virulency to at least the twelfth transmission.

4. The culture product is also pathogenic for mice, and to a lesser degree for rabbits, but scarcely at all for the guinea-pig and pigeon, and apparently not at all for the pig and fowl.

5. This cultivation product, injected into the horse's lung, gives rize to infectious pneumonia,

Hell's experiments with this cultivation were not so demonstrative; for he injected it into the bronchi of thirty horses, but without producing true pneumonia in any of them. After the injections, however, nearly always immediately there was general disturbance, dulness, diminution of appetite, cough, elevated temperature, and quickened pulsations; but these symptoms subsided in about two days, and all was normal again.

Symptoms.—General disturbance is witnessed before the lungs are discovered to be affected, the intensity of the phenomena varying mainly according to individuals; and it is the presence of these phenomena which differentiate this infectious pneumonia from ordinary non-infectious pneumonia, and which assimilates it to every other kind of infectious fever.

Some horses, when attacked, at first only cease to eat, and do not appear very depressed; but others become suddenly prostrate, and in a few hours seem in a state of stupor—hanging the head or resting it on the bottom of the manger, with the eyes partly closed, though they are neither swollen nor tearful. These horses are indifferent to everything going on around them, and will not move unless compelled to do so, when they walk heavily and listlessly, stumbling and staggering as if ataxic. High couraged, nervous animals are generally those most markedly affected, becoming, in the course of a day or two, semi-comatose. In all, whether there is loss of appetite or not, there is intense fever, the temperature running up to 104° or 105° Fahr., and even higher, with quick, shallow, tremulous respirations — twenty to twenty-five per minute; while the heart-beats are hurried and strong, even violent, but the pulse, on the contrary, is nearly always small and weak. The conjunctivæ are slightly infiltrated, and gradually assume a dull yellow or yellowish-brown tint, rather pale than red; thus justifying to some extent the qualification of "bilious" sometimes applied to the malady, and which differs absolutely from the saffron-red hue of ordinary pneumonia, or the violet or old mahogany tint of what the French term typhoid fever. As Trasbot indicates, to the practised clinician there is in this particular tint of the conjunctivæ, a differential sign which is really pathognomonic.

Notwithstanding the frequent gravity of this condition, for several days there is no characteristic symptom of pneumonia.

The rusty-coloured nasal discharge does not appear until later, and is indeed sometimes absent in certain cases throughout the course of the malady, only a little greyish mucous being noticed. The most careful and minute examination of the chest by auscultation and percussion does not reveal any absence of, or even diminution in, the respiratory murmur, nor yet the crepitant moist *râle*, nor any tendency to dulness of resonance on percussion. The lung affection is still *latent* as it were; but this does not imply that no change is going on in the lungs, for it is possible—nay, probable—that these begin to suffer with the onset of fever, but only in their deeper parts; and some horses may die without these pulmonary changes having been appreciated during life. In others it is not until four, five, or six days have elapsed that the superficial parts of the

lungs are involved, when there is perceived a moist crepitant sound; this may, however, be very ephemeral, for soon there is absence of all *râle*, and there is dulness on percussion towards the inferior part of one or both lungs—usually both, as, contrary to what happens in ordinary pneumonia, which is nearly always unilateral, in this infectious form it is nearly always double. In more than thirty cases noted by Trasbot, he did not find one with localisation in only one lung; this he considers quite remarkable.

As hepatization gradually extends, and has reached or exceeded the lower third of the chest, to the other local symptoms just mentioned is now added tubal respiration, heard on one or both sides; for it is rare that this lesion reaches the same height at the same time on both sides, and rarer still to find it limited exactly horizontally. Frequently the blowing sound reaches to close behind the shoulder, while the percussive dullness extends from this point to half the height of the chest; but behind, at the same level, the respiratory murmur and resonance may be perceived.

As Trasbot remarks, this last symptomatic feature—which is generally foreign to ordinary pneumonia—is no less interesting and differential than the preceding ones.

Meanwhile, during this increase of the malady, the general symptoms, which were so intense from the commencement, are maintained or aggravated. The appetite is gone or nearly so; a little fluid may be drunk, or even a large quantity when thirst is great; the breathing is more hurried than the condition of the lungs would appear to warrant, the respirations often reaching thirty-five, forty, or forty-five per minute although the stethoscope only reveals the existence of limited hepatization. The circulation is increased in the same proportion, and the pulse retains its unsatisfactory character; the thermometer may register 106° or 107° Fahr.

Another characteristic symptom, and which is constantly present in infectious pneumonia in man, according to Barth, is the presence of albumin in the urine.(*a*) Whether it is constantly present in the horse is not yet decided; but it is not found in ordinary pneumonia; and should its occurrence be constant, then it will be another valuable diagnostic and characteristic indication of the presence of this particular form of pneumonia. It disappears with recovery of the patient.

As a rule this infectious pneumonia does not run such a rapid course as ordinary pneumonia occurring in a vigorous and plethoric animal; in some cases, notwithstanding the intensity of the fever, it assumes an almost sub-acute character, especially in old and enfeebled horses. In other instances, however, the animals die early, and before the appearance of the usual indications of pulmonary hepatization; while in others again when these are present they reveal only a slight extent of that condition. In both cases the local lesion is apparently so unimportant on an autopsy, that it does not seem sufficient to account for death, and it is necessary to invoke general infection as largely tending to that unfortunate result. Should the animal live sufficiently long, in many instances the pneumonia is complicated with pleurisy—indeed, so frequently does this happen that Trasbot is inclined to consider every case of pleuro-pneumonia in the horse as necessarily of an infectious nature. This intercurrent pleurisy often goes on unperceived, and it is only on *post-mortem* inspection that it is discovered, and found to be of some duration. But in animals which do not succumb rapidly its existence should be suspected, and a careful examination will detect it. Its commencement is marked by a recrudescence, or greater elevation of the already high temperature with corresponding feebleness of the pulse, to be soon after followed by the ordinary signs of pleurisy, more or less marked.

In some few cases pericarditis complicates the pneumonia, but this is difficult of detection, as our patients cannot describe their sensations, and it therefore nearly always escapes notice until after death But its existence might be suspected if with a very weak pulse, there is violent action of heart—powerful beating with corresponding friction sound, and pain on percussion over the region of the heart. Such a complication as this must hurry on the case to a fatal termination.

The liver may be involved, and this will account for the old mahogany tint of the visible mucuous membranes.

In Germany abscess of the lung has been frequently observed, but in France it appears to be almost unknown. Generalised congestion of the lungs appears to be extremely rare, and is usually only witnessed in animals which are in robust health when contaminated; this rarity is explained by the comparatively slow evolution of the disease at its commencement.

Gangrene of the lung is far less common in France than in Germany, where, according to Schütz and other German authorities, it is the usual characteristic of infectious pneumonia.

In Germany, also, the disease has been often complicated with strangles among troop horses, and other complications among these have been reported as follows:—Intense debility and paralysis of the hind-quarters; epileptiform seizures; acute hydrocephalus; inflammation of tendons and tendinous sheaths; internal inflammation of eye; laminitis, etc.

On examination after death, alterations in the lungs are the most striking feature, and these are mainly due to hepatization. This occupies a certain portion of each lung, and is never limited to the inferior parts, nor above by a nearly straight horizontal line, but ascends more to the middle region, towards the bifurcation of the trachea at the upper third of the lungs, invading all or nearly all of the two anterior supplementary lobes, and the whole of the supplementary right lobe. The deeper portions of the lungs are most affected—indeed, hepatization may be very advanced in them, and the superficial parts be still permeable to the air—in this respect differing widely from ordinary pneumonia, and it would go to show that the infective agent whatever it may be, commences its action deeply in the lungs, is at first local, and extends progressively towards the superficies until it has invaded the entire organ, if the animal lives sufficiently long. The hepatization is more of the grey than the red kind, the tissue being generally of a dark red colour, and does not contain much blood nor many, if any, of those hæmorrhagic patches grading from brown-red to black, seen in acute pneumonia. It is also more compact and tenacious, and pressure will cause a some-abundant flow of thick, reddish-grey serum, mixed with blood and pus, from its cut surface. The exudate in the parenchyma is softer and less adherent than in ordinary pneumonia. Very minute abscesses can be detected on close examination of sections of the supplementary lobules and around the larger bronchial tubes; and the intervesicular septa are so remarkably thickened as almost to form a special and differential feature, and assimilate this infectious pneumonia of equines with the infectious pleuro-pneumonia of bovines—a resemblance still further strengthened by the similar development and symptoms in both diseases.

When sections of the diseased lungs are examined microscopically, great numbers of pus microbes and the lancet-shaped micrococcus considered as the real agent in producing the disease, are found. The latter are seen not only in the exudate that fills the air vesicles, but in even greater numbers in the intervesicular septa.

(*a*) *Dictionnaire Encyclop. des Sciences Médicales*, Second Series, vol. xvi., page 289.

There they are found singly as diplococci, and in agglomerated masses. Shütz considers this lancet-shaped bacterium of infectious pneumonia of the horse as a special microbe, different to that of human pneumonia. It is also found in the pleuritic exudate in the always-tumefied bronchial glands, and in the pericardial exudate, when this is present, but very rarely in the blood.

From what has been stated it will be evident that this "stable pneumonia," as it has sometimes been termed, is a much more serious and fatal disease than pneumonia *à frigore*; and it is admitted that it is all the more grave as the animals are high-bred and nervous, common-bred horses resisting it much better. When judicious treatment is adopted early recovery is far more likely to follow than when the disease has been present for some days, as the vitality of the patient quickly becomes sapped, and revivification is impossible.

With regard to treatment, recognising the malady as infectious gives the key to its prevention and suppression. An abundance of pure air is the first essential, and this can only be had in stables which are well ventilated, and in which each occupant has ample cubic space. Over-crowding and hot, close stables must be looked upon, if not the actual causes in promoting the genesis of the malady, as at least the main factors in extending, maintaining, and aggravating it.

When it appears the sick animals should be isolated in cool, roomy, well-aired boxes, open to the daylight and sunlight; and to prevent chills their bodies and legs should be clothed suitably to the weather. Food should be given of the most nourishing and easily-digested kind—scalded oats, oatmeal gruel, hay tea, grass, carrots, milk, etc., and a small quantity of sweet-smelling hay. Milk especially is to be recommended, and the quantity need not be stinted.

With regard to medical treatment—which is, after all, subordinate to the hygienic measures—if an agent could be given with safety in sufficient quantity to destroy the microbes which are supposed to cause the malady, then success in curing it might be assured in a much larger number of cases than can be guaranteed at present.

Quinine is, perhaps, the agent which is most suitable in all cases, and the administration of which is least troublesome. As an antifebrile and even antiseptic medicine I have great faith in it. It should be given in large and frequent doses. Carbolic acid is also an excellent drug, especially when there is any suspicion of abscess or gangrene of the lungs. Trasbot gives the following prescription: Carbolic acid 11 to 14 drams; alcohol 7 to 14 ounces; acetate of ammonia 11 to 14 drams; digitalis 1 to 3 drams. The whole is to be mixed up in honey, and given in four portions in the course of a day. He has also given with success salicylate of soda 2 ounces, and alcohol 8 ounces, administered in the same way.

When there is intestinal irritation nothing is safer or better than small and frequent doses of sulphate of soda.

When the debility is great, and especially when the fever abates, vegetable and mineral tonics, and abundance of nutritious food, must be prescribed. Horses that are recovering should not be allowed to mix with healthy ones until convalescence has been completely established, and every sign of lung trouble has gone.

Hell, in Germany, has attempted preventive inoculation, and with some show of success, by injecting into the lungs of thirty remount horses about thirty to forty grammes of pure cultivation of Schütz's coccus. Immediately after the injection the horses became dull, the appetite was diminished, there was cough, and the pulse was quickened, while the temperature rose to 105° Fahr. These symptoms gradually disappeared, and in two days the temperature was normal. Four horses subsequently received a second injection, and this was followed by only a slight reaction. Three of these animals were kept for fourteen days among horses affected with infectious pneumonia, and did not take the disease.

But little reliance can be placed upon this experiment, and seeing the doubt and difficulty surrounding the subject of preventive inoculation, it must be confessed that isolation, disinfection, and good hygiene are to be preferred in combating the malady.

In conclusion I may say that I have introduced this important subject with the object of drawing the attention of English practitioners to it, so that we may learn to what extent it prevails in this country, and in what respect it may differ in its clinical characters from those observed on the Continent, and so well described by that able veterinarian, Professor Trasbot, director of the Alfort Veterinary School. Much has yet to be learned concerning it, and I trust we may be able to furnish some of the information which is so necessary to render our knowledge complete with regard to a scourge that seems to be on the increase, and which may be considered one of the penalties incurred by our over-domestication of the horse.

Discussion.

The President said they were extremely indebted to Dr. Fleming for his remarkably able and lucid address upon a subject about which very little had previously been said. Many of them in their practice met with cases of pneumonia that appeared to be infectious, and which differed decidedly from what was usually described as influenza, and yet such cases had never been classed as infectious.

Mr. Gibson remarked that with regard to infectious pneumonia, or influenza really, he had had a great deal of experience of it in stables in Birmingham, and had been very successful in treating it. His method was to generate chlorine gas in all the stables, about 8.30 when the men went to their breakfast, because they could not stand the gas while at work. The gas was generated by means of chlorate of potass and hydro-chloric acid. It was attended to every morning, and the constituents, acid, salt, etc., supplied as needed. He had the gas all through the stables, and he found it very effective not only in pneumonia but in glanders and other infectious diseases. They simply let the horses inhale it, and now laid it on habitually in the case of any disease that they considered infectious. In regard to horses with weak lungs, care was necessary, because the gas irritated them, and it would be best to remove them and treat them quietly alone. He used the gas as a preventive. As hygienic measures good drainage and ventilation were necessary.

Mr. T. H. Merrick said that in the course of his practice he had come across a good deal of contagious pneumonia, and in many cases he had traced it to bad drainage. One remarkable case which came under his notice occurred in a ten-stall stable in some farm building which were recently built. The two horses which were put in the second and third stalls from top fell ill. They were removed and kept warm and treated with counter irritants, and two more horses were put in the same stalls and they fell ill, but none of the other horses in the stable were affected. Everything was done to the stalls without effect, and he came to the conclusion that something must be wrong with the drainage. An examination was made, and underneath the two stalls in question they found an old muck-hole where loads of filth had accumulated. Six or eight loads were carted away, and after that pneumonia disappeared from the stable. There was no doubt in his mind that one of the causes of contagious pneumonia was bad drainage. They frequently found pneumonia amongst brewery horses in Northampton in a contagious form. He had seen great benefits result from the administration of

milk. In some cases they had kept patients alive simply by that means. He had also found great benefit from small doses of sulphate of magnesia.

Mr. DAY said as one who had returned from six years' study at the antipodes, he had heard Dr. Fleming's paper with great interest. He believed the disease described in it was what was known in the Australian colonies as bilious influenza. In a stable of a thousand horses, he had known sixty or seventy or eighty of them infected in one week. It was only on hearing the paper read that it occurred to him that the disease was actually contagious; though in every case in which a *post mortem* was made they came to the conclusion that pneumonia was the cause of death. There was no doubt that accumulation of filth formed a hot-bed for the germs of the disease if such germs existed. He had been too far removed from scientific appliances and scientific men to be able to give an opinion as to whether germs did exist. In one large 'bus stable he visited, he found seventy or eighty horses beneath an iron roof, with the thermometer ninety-seven in the shade, and with eighteen inches of solid horse droppings fermenting beneath their feet. In that stable the mortality from pneumonia was very great. In another large stable of which he had the veterinary supervision, he saw that sanitary matters were carefully attended to, and the drains daily flushed with some form of antiseptic. The result was that he never lost an animal there out of some eighty cases. In Australia it was rather difficult for the veterinary surgeon to secure efficient treatment for horses. The horses there were not so valuable, and it was only the most valuable that really got proper medical attention. A valuable remedy for all diseases of the respiratory organs there was the oil obtained from the eucalyptus plant. The plant was common, and he believed that its leaves falling into the streams from which the horses drank acted as a natural disinfectant to a certain extent. He felt certain that the contagious pneumonia described by Dr. Fleming was the disease from which they had been suffering for the last two years in the two great cities of Australia, though it was generally known as bilious influenza and some people tried to make it out that it was pink-eye.

Dr. MANLEY said one of the points raised by the paper, in which he took great interest, was that of comparative pathology. During the last year the attention of medical officers had been directed to the question of how far the current epidemic of influenza among human beings had been concurrent with the epizoötic among animals. In Dr. Fleming's remarks he found much information in regard to the relationship which existed between contagious pneumonia in the horse and the so-called influenza in the human which largely resembled it. Dr. Parsons, of the Local Government Board, had held an extremely interesting investigation into an epidemic of pneumonia in human beings in the town of Macclesfield in which it was found that a contagious form of pneumonia largely connected with zymotic influences had existed in company with a large attack of typhoid forms of diarrhœa, and so far as Dr. Parsons had traced those two forms of disease, he had, to a great extent, convinced himself that the disease which was known as influenza amongst human beings was capable of attacking animals and humans alike. The chief point he would like to emphasise in regard to his own experience of influenza was that it had the power of attacking the serous membranes, and that it had been borne out in Dr. Fleming's remarks that contagious pneumonia was most frequently accompanied by pleurisy, pericarditis, and acute hydrocephalus. In one point, however, there seemed to be a difference. His experience of human influenza was that it was accompanied by extreme photophobia, and that it was generally relieved by darkened rooms. He would ask whether that would be so in the case of horses; because Dr. Fleming said the patients were to be exposed to as much light as possible. The bilateral character of pneumonia in its contagious form was also another point in which that form of pneumonia which had lately proved so fatal in England, followed by influenza, resembled pneumonia in horses.

Mr. STANLEY said the subject was especially interesting on account of the large amount of influenza that had been experienced during the last six months. Personally he believed that years ago they had influenza of the same character as that which they knew at present. It was no doubt due to an organism of some kind. What it was he was afraid they did not yet know; but it attacked all classes of horse, whether poor or fat, or badly or well kept. He had noticed during the past winter that in fifty horses which were attacked they had not half-a-dozen cases that could be treated alike. Each required separate watching and care, and they had to prescribe differently for each one. In such cases he put good nursing before anything else. Unless they had men who would sit up at night and attend to the patients, his experience was that they died. They lost some horses, and many grew much worse because one of the men was away two nights before they found out his neglect. As to treatment, they had used a great deal of whiskey and a great deal of milk. As for the atmosphere, he believed in letting in as much fresh air as they could without draught. In one lot he had under treatment, the only two deaths that occurred was in consequence of the patients being in boxes that could not be properly ventilated. Where they could get them into anything like a big space, and allow them to move about, they got on a great deal better.

Mr. CHAMBERS asked if Dr. Fleming got accelerated breathing in cases of infectious pneumonia. He had had many cases of what they called pink-eye, but in those he had not found accelerated breathing. There was stertorous breathing from the nostrils, but the flanks should not move more quickly than usual. Among horses that were broken-winded, or that ran from the stick, the disease had been very fatal. He was not sure it was infectious or contagious. He had, however, known a dealer take a horse from a stable where several horses were under treatment, and sell him. When that dealer's attention was drawn to the fact that there was something the matter with the animal's eyes, he said, "Oh, he has had a blow." The purchaser took him home and put him with his other horses, and the disease spread among them. He (the speaker) administered mis-tonica in ounce doses three times a day in half-a-pint of old ale. He put a man with them to feed them a little bit at a time with anything they would eat. He had not found counter-irritants any good, and did not use them. He had had several die, especially horses that were broken-winded, or would not lie down. He noticed in many cases that horses which took this disease would not lie down until they recovered.

Mr. STANLEY asked if Dr. Fleming could explain whether the disease would be frequently accompanied by excessive lameness. He had had some cases of that kind this winter.

Mr. W. CARLESS observed that the first cases in an outbreak were generally the worst, because they were allowed to develope before the surgeon was called in. It was not unusual for those first cases to prove fatal; but on ascertaining the condition of things, and rectifying faults of management, the cases became milder in type and more amenable to treatment. One marked symptom of the disease was a disposition to death of the skin, and offensive putrid wounds as the result, with an effusion from the infectious serous membranes of turbid fluid, different in colour from what they found in ordinary cases of pleurisy, and no doubt, impregnated

with pus cells. He had always used counter-irritants, especially to the chest walls. In the earlier stages it brightened up the circulation. He also kept the legs warm. He had seen good effects from the use of stimulants given in the way of stout, and champagne, if the owner liked to afford it—a wonderful effect from that. Pure air, clean water, and clean stables were also necessary. He had often traced the origin of disease in a horse to having been placed in an hotel stable, many of which were not supervised as they ought to be. Horse-owners should select those hotel stables where the ventilation was good and the cleansing and disinfection regularly done.

Mr. BLAKEWAY drew attention to the fact that Dr. Fleming's paper was on infectious pneumonia, and they seemed to be discussing influenza. He had met with many cases lately which seemed to be inflammation of the larynx, and little else. He would like to know if Dr. Fleming had seen many cases of contagious pneumonia in England?

The CHAIRMAN agreed that there had been a slight misconception of what Dr. Fleming meant to bring before them. Dr. Fleming had in no sense recognised infective pneumonia as influenza. He recognised that these two diseases were distinct and separate, and in no way related, except that they were both infectious and contagious. In pink-eye they had quite a different train of symptoms from those which Dr. Fleming had described. They frequently met with pneumonia, especially among young horses, or horses newly introduced to a stable, and, unlike influenza which spread rapidly over the country, it was often confined to a small area. It was not spread by the climatic influences that they met with in influenza. The disease he was alluding to was entirely confined to the lungs. Some years ago at Birmingham he knew one end of a crescent-shaped stable affected while the other parts remained quite free. In other cases they had it was simply double pneumonia, rather of a typhoid type, very fatal and difficult to handle. The treatment they most used was the simple one of milk. It seemed to sustain the horses, and supply them with food, and keep them in better condition than anything else. How it arose in the first case was difficult to say; but once it had arisen there was not much doubt about it spreading by infection. With regard to the use of the two words, "infective" and "infectious," he would like to know what distinction Dr. Fleming made between them.

Dr. FLEMING said the subject was rather liable to be confounded with influenza. They heard every year of influenza being present more or less in the country. Horse dealers recognised this malady as influenza, but it was influenza pure and simple. The disease they had had for some time amongst their horses was quite a different malady. One of the most important signs of the disease at the first glance was the respiration. In influenza the respiration was not often much disturbed, but in infectious pneumonia the respiration was disturbed from the commencement, and that was one of the diagnostic signs. Not only that, but they would find the changes in the lungs were entirely different, and it was for that reason that he brought before them the diagnostic signs. The malady prevailed all the year round. For the last four or six years several outbreaks of contagious pneumonia had been recorded in the medical journals when there was no general outbreak prevailing. It appeared to be on the increase in this country, and it was necessary that they should recognise its existence, and be prepared to act accordingly. As to photophobia that was a marked indication of influenza in horses and man. In infectious pneumonia there was no photophobia. The eyelid drooped from inflammation, but there was no lachrymation. In the two diseases the condition of the eyes was different. Infectious pneumonia was properly a disease of the lungs. He was anxious to find out to what extent the malady exists in this country. He was satisfied that in most large towns contagious pneumonia must be prevalent. In regard to light, if the eyes were affected they should be protected. He was a great believer in daylight and sunlight. His experience was in favour of getting horses suffering from fevers into loose boxes, and giving them plenty of sunlight and fresh air. He was not much of a believer in stimulants, and he found that the less medicine they used to horses the better. If an animal would take food, especially milk, that was a better stimulant than alcohol. There was another distinction between influenza and pneumonia. In influenza a horse would often lie down, showing that the lungs were not involved. In infectious pneumonia they would not lie down. As to lameness, that was often a marked feature of influenza. They knew that in the human subject there were great muscular pains, and no doubt the horse suffered in the same way. If he had used the word "infective" as applied to pneumonia it was not the word he intended to use, but "infectious." Infective was applied to the diseased condition of a structure which infected the neighbouring structures, as cancer. He agreed with what had been said as to the influence of insanitary stables in promoting the disease. There were stables at Regent's Park Barracks during his connection with them which were never free from pneumonia.

Mr. STANLEY moved, and Mr. MERRICK seconded, a vote of thanks to Dr. Fleming for his attendance and for his paper.

The motion was carried with acclamation.

Dr. FLEMING, in acknowledging the compliment, said it was now eight or ten years ago since he visited that Society, when the brother of the gentleman who proposed that vote was then Secretary. The aim in their papers and discussions should be not only to improve their practice but their scientific knowledge. If they could improve the scientific aspect of their profession, especially in assimilating the diseases of animals with those of men, they would be doing a great service. To keep pace with the times they should have at their meetings as many scientific papers as possible.

The CHAIRMAN brought under the notice of the meeting the proposed memorial to the late Mr. Steel, and said he should be pleased to receive any names to the subscription list.

Mr. BEDDARD moved and Mr. STANLEY seconded that the next meeting be held at Wolverhampton.

Mr. JONES proposed Leicester, and Mr. WIGGINS seconded.

On the vote being taken Wolverhampton was adopted by a large majority.

The members of the Association afterwards dined together at the Hop Market Hotel.

HENRY J. DAWES,
Hon. Sec.

ARMY VETERINARY DEPARTMENT.

We learn that V.S. S. M. Smith, who has been on service at Manipur, is being invalided to India with fever.

Veterinary surgeons Crow, J. J. Philips, Hagger, and Evans are on field service in Indian frontier expeditions.

The cocked hat has been abolished for veterinary surgeons, and with it disappears the feathers of the tint of reduced Hæmo-globin. The helmet is to take its place. It is decided that the sword-belt is to be

worn under the tunic and not over it, a girdle is to take its place.

Veterinary surgeon Rayment has been appointed to the Bombay College in place of the late Professor Steel. V.S. Lewis has also been appointed to the Army Veterinary School at Poona.

THE SUPPLY OF ARMY SURGICAL INSTRUMENTS.

In the House of Commons on Monday night Mr. ARTHUR O'CONNOR asked the Secretary of State for War whether he was aware that certain firms now in receipt of contracts for the supply of surgical instruments did not manufacture the goods they supply; and why certain firms received contracts from year to year whose prices were considerably higher than those at which other and larger houses supplied the same articles.

The HON. E. STANHOPE: It is reported to me that the surgical instruments supplied to the War Department are manufactured by the firms contracting to supply them, and that the prices are not higher than those charged by other houses for goods of the same standard of quality. An assurance that the instruments are absolutely trustworthy is so essential in surgery that it has not hitherto been considered advisable to disturb by open competition arrangements under which perfectly satisfactory instruments had been for many years procured, but I will look into the matter.

Mr. ARTHUR O'CONNOR: Will the right hon. gentleman inquire whether it has been admitted in the course of legal proceedings that the present contractors do not manufacture the instruments they supply, and will he cause an inspection to be made of the price-lists of different firms? The Hon. E. Stanhope: I shall be very glad to do that.

PARLIAMENTARY NEWS.

PLEURO-PNEUMONIA AND THE DUBLIN SHOW

In the house of Commons on Thursday night July 2nd Mr. LENG asked the President of the Board of Agriculture whether representations had been made to him that at the Royal Dublin Spring Show a Jersey cow was exhibited in an advanced stage of pleuro, and died within a week afterwards from the disease? Whether, in accordance with its own regulations, it was the duty of the Board to order all the cattle "in contact" with the diseased animal at the show to be slaughtered? Whether he is aware that such Order has been served on one or more of the exhibitors with an offer to give compensation at the rate of £40 per head, that being the highest sum allowed for any one beast under the Contagious Diseases (Animals) Act, but that, in consequence of strong protests against the adequacy of that compensation in the case of highly bred cattle, and other remonstrances, the carrying out of the Order has been indefinitely postponed? And whether the pleuro Order is to be disregarded when it involves the slaughter of valuable pedigree stock, and only enforced against ordinary cattle?

Mr. CHAPLIN said: The Board of Agriculture received on May 29th an intimation that a Jersey cow was exhibited at the Royal Dublin Show on March 31st and following days, and died of pleuro-pneumonia on April 11th. The other paragraphs of the question contain a series of assumptions on all of which the hon. member has been misinformed. In answer to the second and third paragraphs, it is neither the duty, nor is it within the power, of the Board to order all cattle that have been in contact with diseased animals at shows to be slaughtered, and no such Order as that referred to in the third paragraph has been made, and consequently the carrying out of the Order has not been indefinitely postponed in consequence of the strong protests against the adequacy of the compensation. With regard to the last paragraph, the hon. member is apparently not aware that whilst slaughter is obligatory in the case of animals which are diseased, the slaughter of those which have been in contact is left to the discretion of the Board, and in the case of pedigree cattle of great value, I endeavour to use the discretion as far as is in my judgment consistent with the effective working of the Act.

EXTRACTS AND NOTES.

THE GRAFTING OF CANCEROUS TUMOURS.

ACCUSATIONS AGAINST BERLIN SURGEONS.

The sensation created recently in Paris by Professor Cornil's revelations concerning the deliberate grafting of cancerous tumours on living patients is (says the Berlin correspondent of the *Times*) finding a painful counter-part in this country, in consequence of an accusation of similar practices brought by Dr. Eugen Leidig against Dr. Hahn and Professor von Bergmann. Dr. Hahn has a high reputation as a careful and unusually successful operator, particularly in certain affections of the throat, while the name of Dr. von Bergmann, who fills the chair of surgery at Berlin, has probably been rendered more familiar by the prominence which it held in the medical controversies that raged round the death-bed of the late Emperor Frederick. Dr. Leidig declares that Dr. Hahn and Professor von Bergmann have repeatedly experimented on patients in the hospital at Friedrichshain by inoculating them with cancer lymph, adding that the results of these experiments have been published in the medical journals from time to time since the year 1887, and he demands to be informed—first, whether these experiments were conducted with the knowledge and permission of the patients concerned; secondly, whether the patients were aware that the experiments had no curative purpose; and, lastly, whether the experiments had the effect of increasing the sufferings of the patients.

Dr. Hahn and Professor von Bergmann admit the accuracy of Dr. Liedig's statement, but they say by

way of a reply that in every case the patient so operated upon was past recovery. They also affirm that it was necessary for them to select human beings for experiment, inasmuch as none of the lower animals would have been suitable for their purpose. The controversy, so far as it has gone, is anything but reassuring to hospital patients, and has created a widespread feeling of uneasiness in regard to surgical methods which apparently take so little account of human life.

VETERINARY EXAMINATIONS AT DONCASTER.

We have no reason to believe that *The Yorkshire Herald* is anything but a respectable provincial paper, but whilst making every allowance for its difficulties in obtaining good reporters, we must protest against the ignorance and impertinence of the individual who wrote the report of the recent Royal Show. Here is the paragraph of which we complain

> "Many owners of horses were indignant, we are inclined to think that they were justly indignant, at the way in which their horses were examined, and complained bitterly of their valuable animals being submitted to the inspection of inexperienced men. We have had occasion to speak of the unsatisfactory character of veterinary examinations before now, and we venture to predict that unless some improvement on the present method is introduced, shows will suffer considerably, No man will knowingly send his horse to a show if he is unsound, and we know men who have exhibited horses that the inspectors rejected which they asserted were sound, whose opinion as to the soundness of a horse we would rather take than that of the whole college of veterinary surgeons.

To describe the veterinarians selected by the Royal Agricultural Society to examine the horses exhibited at Doncaster as "inexperienced men" is an insult to the Royal Agricultural Society. To assert that "no man will knowingly send his horse to a show if he is unsound" is contrary to every day experience; whilst to express a preference for the opinion of a disappointed exhibitor "rather than that of the whole college of veterinary surgeons" is a cheap flippancy only explainable on the supposition that the writer may have someday owned a rejected 'screw' or that his impertinence is the direct result of ignorance. In any case the editor of the *Yorkshire Herald* will be well advised to make some change in his staff.

EARLY RECOGNITION OF TUBERCULOSIS IN CATTLE.

A most remarkable observation has recently been made by M. Léon Mandereau, of Besançon, which if corroborated must alter very considerably our ideas on the subject of the distribution of the tubercle bacillus in generalised and local tuberculosis. This observer removed from the eyes of cattle that had succumbed to tuberculosis a drop of the aqueous humour, stained it according to Ehrlich's method, and found that the characteristic tubercle bacilli were present sometimes in small, but always in sufficient, numbers to be readily identified. This opened up the way for the early diagnosis of tubercle, and M. Mandereau made careful examination of more than a score of animals suffering from tuberculosis in various stages. As he expected, he found the bacillus in the aqueous humour in all cases where the condition was generalised; but, more remarkable still, he found them even in those cases where the disease was confined to the lungs and pleura, and even when it was present only in the liver. This being the case, the diagnosis of tuberculosis could be made comparatively easily during life. This observation is so startling that much hesitation must be felt in accepting it; though made in perfectly good faith, it may b nullified by some undetected fallacy; and until it has been shown that all sources of fallacy were eliminated, it will be well to suspend final judgment. Should it prove to be true, it would be difficult to understand how Colhnheim and Salomonsen's experiments on the production of intraocular tuberculosis are to be explained, if tubercle bacilli in the anterior chamber, when introduced naturally along the lymphatics do not give rise to any marked symptoms of tuberculosis. Of course, here it may be argued that a wound of the tissues was produced, and that the conditions are therefore not the same. Another point for consideration is that, if these observations be correct, we shall have to revise all our notions as to the presence of tubercle bacilli in the blood and lymphatics of the system generally, even in cases of localised tuberculosis—conditions in which it has been held that tubercle bacilli were localised not only in their action, but also in their distribution. If the wound theory is to hold good at all, we should expect to find that after puncture of the cornea for the removal of the fluid, the tubercle nodules should make their appearance in the eye; and if these nodules do not occur, it is certainly presumptive evidence that tubercle bacilli are not there.—*Brit. Med. Journal.*

PYOGENIC COCCI IN THE SWEAT IN PYÆMIA.

Dr. Anton Freiherr von Eiselsberg, Assistant in Professor Billroth's clinic in Vienna, reports (*Berl. klin. Wochenschrift*, June 8th, 1891) the discovery of pyogenic cocci in the sweat of a man aged 31, the subject of pyæmia, following osteomyelitis of the femur. The patient was somewhat relieved by operative procedures, and these were followed by excessive sweating, but he ultimately died with multiple pyæmic abscesses. Both in the pus from the original seat of disease and in that from the metastatic abscesses and also in the patient's blood, a large quantity of staphylococcus pyogenes aureus was discovered. In order to examine the sweat, the patient's forehead was very carefully cleansed and disinfected, and specimens of

sweat were taken from various parts of the skin so cleansed directly they appeared. Inoculations into cultivation tubes were made, and it was found that in agar and gelatine no result took place, but in two agar tubes a growth ensued, which on further inoculation was proved to consist of staphylococcus aureus. Cultivation on plates and frequent repetition of the experiments were followed by similar results. The presence of the identical micro-organism in the pus and in the blood and in the sweat, after the most elaborate precautions had been taken to prevent contamination of the skin, would seem to warrant the conclusion that the coccus is actually present in the sweat and is excreted from the body with it. The improvement so commonly noted after excessive sweating may perhaps be directly dependent upon this excretion, and at any rate should direct attention to the treatment of the skin in such cases, so as to favour as far as possible the excretion of sweat when the disease is presumably due to the presence and activity of the staphylococcus aureus.

THE JOHN HENRY STEEL MEMORIAL FUND

Veterinary Department,
Privy Council Office, Dublin Castle,
July 9th, 1891.

Dear Sir,

Enclosed is a list of the subscriptions received by Mr. Matthew Hedley, F.R.C.V.S., Chief Inspector of this Department, from the professional staff.

The amount has been duly forwarded to Dr. Fleming, on behalf of the John Henry Steel Memorial Committee.

Yours faithfully,
for Matt. Hedley,
M. F. Boyle.

To the Editor, *Veterinary Record*.

Subscription List (Departmental).

	£	s.	d.
Matthew Hedley, Chief Inspector	3	3	0
D. S. Prentice, Travelling Inspector	1	1	0
J. H. Jones, Portal Supervisor, Dublin	1	1	0
F. Kerr, Dublin	1	1	0
W. C. M. Smith, Newry ...	1	1	0
W. J. Gabbie, Dundalk ...	1	0	0
H. J. Kelly, Greenore ...	1	0	0
O. D. Coll, Limerick	1	0	0
R. S. Blee, Waterford ...	1	0	0
W. J. Johnson, Waterford ...	1	0	0
D. Hamilton, Sligo	1	0	0
R. D. Dove, Dublin	0	10	6
John Sinclair, Cork	0	10	6
J. R. Lewis, Dublin	0	10	6
R. A. Gilmore, Coleraine ...	0	10	6
W. B. Cronyn, Dublin ...	0	10	6
J. A. Bole, Portal Supervisor, Belfast	0	10	0
H. T. Ashbee, Belfast ...	0	10	0
G. A. J. Muir, Cork	0	10	0
Chr. Jones, Dublin	0	10	0
Wm. Chambers, Drogheda ...	0	10	0
Jas. Taylor, Dundrum ...	0	10	0
J. Jenks, Larne Harbour ...	0	10	0
J. B. Moore, Londonderry ...	0	10	0
H. Keyes, Dublin	0	10	0
L. W. Delacherois, Dublin ...	0	10	0
J. W. Logan, „ ...	0	10	0
Jas. Purdy, „ ...	0	10	0
F. W. Emery, „ ...	0	10	0
J. M. Christy, „ ...	0	10	0
J. H. Bell, „ ...	0	10	0
F. C. Gavin, „ ...	0	10	0
W. B. West, „ ...	0	10	0
T. J. Daly, „ ...	0	10	0
W. J. Moran, „ ...	0	10	0
Total ...	£25	9	6

A Nailless Shoe on Trial.

We quote the following from *The Live Stock Journal* and await with some curiosity the announcement of the result of—shall we say three *weeks* or three *days* trial.

"The Paris Tramway Company has recently shod its horses with a Bessemer steel shoe, which is placed on cold in a few minutes without a single nail. The shoe is similar to ordinary ones, but it has in the front a bent lever which attaches itself about midway of the anterior wall of the hoof, without compressing it in any way. A flexible loop, also of Bessemer steel, then runs round the hoof, starting from the two iron heels of the shoe, in order to rest upon the top of the lever, which supports it entirely. The shoe is furnished with three small interior calkins, which penetrate into the outer rind of the hoof, and prevent the shoe from becoming displaced unless the loop has been previously removed. Besides the horses of the tramway company, which, with these shoes, travel twenty-one kilometres every day, a large drayman and a livery-stable keeper have been for several days successfully trying these shoes, which in the opinion of practical men, appear destined to revolutionise horse-shoeing, and to render great service in the army, industry, and agricuturel."

Hereditary Tuberculosis.

After referring to the important part played in infantile tuberculosis by the increasing habit of artificial feeding, M. Landouzy (*Revue de Médecine*, 1891) protests against looking upon all cases of tuberculosis as arising after birth; nor does he think that the question of heredity is one of suitability of the soil alone, but also of actual bacillary infection. In the transmission of variola, whooping-cough, syphilis, etc., to the fœtus, the same difficulties are not raised as in tuberculosis. The author and M. Martin proved experimentally in 1883 that inoculation from a fœtus born of a phthisical mother, and yet with no naked-eye tuberculous lesions, would produce tubercle in guinea-pigs. The recent case reported by Birch-Hirschfeld and Schmorl, where tubercle bacilli were found in the placenta, and also in small numbers in the fœtal liver, is referred to. These results

resemble those obtained by Johne and by Malvoz in the case of the fœtal calf. They also agree with the experimental evidence as to the transmission of the anthrax bacillus through the cow to the calf. The rarity of tuberculous lesions themselves in the fœtus is perhaps not so astonishing. The fœtus is "bacillised," but time is needed for the bacilli to grow and fructify. If this delay in their development be granted, then hereditary tubercle resembles hereditary syphilis, but it occurs later. Thus it may be understood (1) that such a fœtus can convey tuberculosis, by inoculation and (2) that the presence of bacilli (bacillosis) in the infant gives rise to vague symptoms referred to teething, cold, etc., and later to any of the various tuberculous lesions.

Gratuitous Advice

In its "Answers to correspondents" last week, *The Live Stock Journal*, generally a very correct paper, publishes the following:—

> Swelled Leg.—C. T.—Your mare is suffering from farcy, which is brought about by the nature of the food the animal is receiving, accompanied by lack of exercise. We should advise you to call in a veterinary surgeon, as these cases if neglected or badly treated are liable to end in permanent enlargement of the limb, which, of course, very much lessens the value of the horse, and bad cases sometimes end fatally.

It is well that the advice to call in a veterinary surgeon is given, but really our contemporary should know more about the etiology of such a disease as farcy.

Veterinary Obstetrics

The following we take from *The Farmer and Stock-breeder*:

On the morning of the 13th June, my cow gave birth to her second calf. The labour was easy, only lasting 15 minutes. As the placenta did not follow the next day, my man was advised by a neighbouring dairyman to tie a weight to the protruded parts, which was, however, attended with no result until the morning of the 16th, when I was informed that a very great deal had now come. I found the animal lying down on some straw in the yard in the usual position, with an enormous mass protruding, which on examination I found to be the verted vagina and uterus. Shreds of placenta were adherent to the corrugated nodules of uterine membrane, which I subsequently peeled off. As the vet. I sent for was unable to come, there was no other alternative than to set to work myself. I sought the assistance of a farm bailiff, and with the kind help of a friend and my groom commenced. An old hat acted exceedingly well for an impromptu inhaler. Pouring in 2 drachms of chloroform at a time while the animal's nose was inserted, and which she seemed to enjoy, I then washed the protrusion, which nearly reached her hocks, with a solution of permanganate of potash, three grains to an ounce of warmed water, and returned the mass, bit by bit. Fearing the constant straining might lead to a repetition of our troubles, I inserted an empty pint champagne bottle into the vagina, retaining it *in situ* by trying a double T bandage round the neck of bottle, attaching the free ends to another bandage tied round the chest. A warm bran mash containing ½ oz. of laudanum was eagerly taken, and 2 pints of warmed permanganate solution was injected per vaginum by means of a funnel and flexible tube, which injections were continued night and morning until the 24th, discarding my impromptu pessary on the 18th; and now, I am happy to say, my animal seems as well as she ever was. I have entered a little into detail, because I find there is a barbarous custom adopted in these cases, namely hanging the creatures up by their hind-quarters with ropes and pulleys, and, from all I can learn, few recover. My object in writing is to show that a little common-sense, 2 ounces of chloroform, and one pennyworth of permanganate of potash, can prevent suffering, trouble, and loss.

A Surgeon and Justice of the Peace for Dorsetshire.

Arsenic in the treatment of Warts

Dr. Paul Müller, of Hamburg, writing in the *Allgemeine Medicinische Central-Zeitung*, "cannot sufficiently recommend" the internal use of arsenic in the treatment of warts on the hands. He has employed it for more than two years and always found the warts disappear within three weeks. Another practitioner, Dr. Pullin, who seems to have used arsenic for the same purpose somewhat longer, says that he has known it cure warts in eight days. The dose ordered by Dr. Müller is only at the beginning two drops of liquor arsenicalis three times a day for adults, and a quarter of a drop for childran. These quantities are gradually increased.

Monodactylous Pigs.

M. Vasilesco, professor of Zootency at the Veterinary School of Bucharest, has just written to the director of the Alport School, offering him two specimens of a rare and singular variety of the porcine species. They belong to the monodactylous variety, the existence of which, although put forward by ancient authors, has been often doubted. They are very interesting from a scientific point of view, notably as regards Darwen's Theory. M. Vasilesco, having by accident discovered a boar monodactylous pig in Wallachia, and having mated him with a sow with normal hoofs, obtained a monodactylous litter, the decendants of which, with one or two exceptions, presented the very curious anatomical characteristics of the breed in question. This reconstitution appears the more important, as at different periods monodactylous pigs have been destroyed for religious reasons.

Communications, Books, and Papers received:—Messrs. W. Mole, J. Gregg, E. Robertson, H. E. Poole, J. H. Parker, Prof. F. Smith.

We shall be obliged by early intelligence of all matters worth bringing under the notice of the profession, and thankful to any friends who may send us cuttings from local papers, containing facts of interest.

Original articles and reports should be written on one side only of the paper, and authenticated by the names and addresses of the writers, not necessarily for publication.

Communications for the Editor to be addressed 20 Fulham Road, S.W.